

IN THE CLAIMS

1. (Currently amended) A method for testing of a communication network having a plurality of end-points, using one or more network agents coupled to the network at respective locations, the method comprising:

specifying at least one packet filtering criterion;

transmitting one or more data packets meeting the at least one criterion through the network from one of the end-points to another;

intercepting at least one of the data packets meeting the criterion using the network agents at one or more of the respective locations in the network, intermediate the end-points, traversed by the at least one of the data packets;

recording a time of arrival of the at least one intercepted packet at the one or more respective locations; and

processing the recorded information to analyze a route of the at least one intercepted packet through the network,

wherein processing the recorded information comprises determining, responsive to the time of arrival, transit times of the at least one intercepted packet over network links connected to the respective locations and traversed by the at least one intercepted packet, and

wherein the plurality of end-points comprises a source end-point and a destination end-point, and

wherein transmitting the one or more data packets comprises transmitting original packets from the source end-point to the destination end-point, and receiving corresponding echo packets returned from the destination end-point, both the original and the echo packets meeting the criterion, and

wherein determining the transit times comprises determining round-trip transit times by intercepting both the original packets and the corresponding echo packets.

2. (Original) A method according to claim 1, wherein specifying the at least one packet filtering criterion comprises specifying a pattern of data to appear in the one or more packets to be transmitted.

3. (Original) A method according to claim 1, wherein specifying the at least one packet filtering criterion comprises specifying information associated with a data protocol in accordance with which the packets are to be transmitted.

4. (Original) A method according to claim 3, wherein specifying the information associated with the data protocol comprises specifying a Transport Control Protocol (TCP) sequence number to be assigned to the one or more packets to be transmitted.

5. (Original) A method according to claim 4, wherein the TCP sequence number comprises an acknowledgment sequence number.

6. (Original) A method according to claim 1, wherein the plurality of end-points comprises a source end-point and a destination end-point, and

wherein transmitting the one or more data packets comprises transmitting original packets from the source end-point to the destination end-point, and receiving echo packets returned from the destination end-point, both the original and the echo packets meeting the at least one criterion.

7. (Original) A method according to claim 1, wherein the network agents comprise Remote Network Monitoring (RMON) elements, in accordance with one or more applicable standards defined by the Internet Engineering Task Force (IETF).

8. (Original) A method according to claim 1, wherein the network agents comprise software processes running on nodes of the network at the respective locations.
9. (Original) A method according to claim 1, wherein the network agents comprise stand-alone probes.
- 10-11. (Canceled)
12. (Currently amended) A method according to ~~claim 11~~ claim 1, wherein intercepting the at least one of the data packets comprises intercepting multiple data packets, and wherein determining the transit times comprises detecting a jitter in transit of the packets over one of the links.
13. (Canceled)
14. (Currently amended) A method according to ~~claim 13~~ claim 1, wherein transmitting the original packets comprises transmitting a Transport Control Protocol (TCP) initialization packet having a first, specified TCP sequence number, and
wherein receiving the echo packets comprises receiving a TCP connection acknowledgment packet having a second TCP sequence number, which is determined responsive to the first TCP sequence number.
15. (Original) A method according to claim 1, wherein processing the recorded information comprises determining which of a plurality of links in the network were traversed by the at least one intercepted packet.
16. (Currently amended) Apparatus for testing of a communication network having a plurality of endpoints and nodes connected by links, comprising:

one or more network agents, adapted to be coupled to the network at respective locations intermediate the end-points and to intercept data packets transmitted from one of the end-points to another that meet a predetermined packet filtering criterion and traverse the respective locations, and to record times of arrival of the intercepted data packets; and

a testing center, configured to convey the criterion to the network agents and to cause one or more data packets meeting the criterion to be transmitted through the network from one of the end-points to another, and to process the information recorded by the network agents in order to analyze a route of the at least one intercepted packet through the network,

wherein the testing center is operative to determine, responsive to the recorded times of arrival, transit times of the at least one intercepted packet over the network links connected to the respective locations and traversed by the at least one intercepted packet, and

wherein the determined transit times comprise round-trip transit times, determined by transmitting original packets from a source end-point to a destination end-point, and receiving corresponding echo packets returned from the destination end-point responsive to the original packets, both the original and the echo packets meeting the criterion, and

wherein both the original packets and the corresponding echo packets are intercepted by the one or more network agents.

17. (Original) Apparatus according to claim 16, and comprising at least one traffic agent, which is configured to receive instructions from the testing center and, responsive thereto, to transmit the packets meeting the criterion from the one of the end-points to the other.

18. (Original) Apparatus according to claim 17, wherein the packet filtering criterion comprises a pattern of data that is included in the packets transmitted by the at least one traffic agent.

19. (Original) Apparatus according to claim 18, wherein the at least one traffic agent comprises first and second traffic agents at respective network endpoints, and wherein responsive to receiving one of the packets with the pattern of data transmitted by the first traffic agent, the second traffic agent returns a data packet comprising the pattern of data to the first traffic agent.
20. (Original) Apparatus according to claim 17, wherein the packet filtering criterion comprises information associated with a data protocol in accordance with which the traffic agent transmits the packets.
21. (Original) Apparatus according to claim 20, wherein the information associated with the data protocol comprises a Transport Control Protocol (TCP) sequence number used by the at least one traffic agent.
22. (Original) Apparatus according to claim 16, wherein the plurality of end-points comprises a source end-point and a destination end-point, and wherein the one or more data packets meeting the criterion comprise original packets sent from the source end-point to the destination end-point and echo packets returned from the destination end-point responsive to the original packets, both the original and the echo packets meeting the criterion.
23. (Original) Apparatus according to claim 16, wherein the network agents comprise Remote Network Monitoring (RMON) elements, in accordance with one or more applicable standards defined by the Internet Engineering Task Force (IETF).
24. (Original) Apparatus according to claim 16, wherein the network agents comprise software processes running on the nodes of the network at the respective locations.

25. (Original) Apparatus according to claim 16, wherein the network agents comprise stand-alone probes.

26-27. (Canceled)

28. (Currently amended) Apparatus according to ~~claim 27~~ claim 16, wherein the one or more network agents are operative to intercept multiple data packets, and wherein the testing center is adapted to detect a jitter in transit of the packets over one of the links.

29. (Canceled)

30. (Original) Apparatus according to claim 16, wherein the testing center is operative to determine which of the links in the network were traversed by the at least one intercepted packet.

31. (Currently amended) A computer software product for testing of a communication network having a plurality of end-points, using one or more network agents coupled to the network at respective locations, the product comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a computer, cause the computer to specify a packet filtering criterion and to engender transmission of one or more data packets meeting the criterion through the network from one of the end-points to another, such that at least one of the data packets meeting the criterion is intercepted using the network agents at the respective locations in the network, intermediate the end-points, traversed by the packets, which agents record a time of arrival of the at least one intercepted packet at the respective locations, and which instructions further cause the computer to receive and process the recorded information so as to analyze a route of the at least one intercepted packet through the network,

wherein the instructions cause the computer to determine, responsive to the recorded times of arrival, transit times of the at least one intercepted packet over the network links connected to the respective locations and traversed by the at least one intercepted packet, and

wherein the determined transit times comprise round-trip transit times, determined by transmitting original packets from a source end-point to a destination end-point, and receiving corresponding echo packets returned from the destination end-point responsive to the original packets, both the original and the echo packets meeting the criterion, and

wherein both the original packets and the corresponding echo packets are intercepted by the one or more network agents.